

HOME COMPUTING WEEKLY

AN ARGUS SPECIALISED PUBLICATION

April 9-15 1983 No. 107 45p



April showers
bring prizes from
AHHTER



We've got
£1000 of prizes
up for grabs

Here's our
winner!



Meet
Wallykhamen and
friends
Your state-of-the-
art badge designs

Tatung to enter home market?

Tatung has slashed the price of its Eleosha from £500 to £350. And rumors of a new model which will compete with the Amstrad CPC464, are currently being bandied about.

Code-named the Micro Eleosha, the new computer is reported to feature a built-in three inch disc drive, 44K of RAM, 16K of video RAM and software which includes Crystal BASIC, a BBC-like BASIC and Dr Logo.

According to a source at Tatung, the Micro Eleosha will be unveiled at a trade show in May. The latest model should cost about £350 (UHF modulator extra) while the computer plus colour monitor should retail at £450.

Colin Chivers, Tatung sales manager, was being tight-mouthed. "We're looking at various options to find where the money are," he said. "And the objective is raising the price of



Eleosha — price slashed to £350

the Eleosha is to gain a larger share of the market."

The Eleosha has suffered from a lack of software, but Mr Chivers claims this has now

been remedied, with supporting titles from 20 software houses, among whom are Games, Software Projects and Activision.

A wafer revolution

Cheaper than a disc drive but hundreds of times faster than a cassette — it's the wafer drive.

Based on the principle of the random loop, the tiny wafer runs on compact disc drives. The C44 version, from Data Electronics, costs less than £100 and joins the Retrocast/Spectrum Waferdrive, launched last summer.

Mark Ellis, Dean and Kossow have joined to promote the waferdrive. Nigel Spencer, BOD deputy chairman, said: "We're going to replace cassette storage among low-cost computer users."

Source: Trademark of Data.



C44 Quick Data Drive

Electronics explained: "Ideally, we will be offering a wafer which includes the drive, quick operating system, a blank wafer and a game, at a cost of just under £100 for the C44."

Software houses interested in this storage medium include

Wolborough House, Hermes Computers and The Edge.

The cost of each wafer ranges between £2.45 and £2.99, depending on memory capacity. There is only a 50p difference between a 14K and a 128K wafer.

Inside your
bolder,
brighter,
better HCW...

Add-ons: Disc
drives and
interfaces
summed up

Listen to this!
Sound moves
for the Amstrad

Meet our
Boy Wonder
See p.3

Hi-scores,
jokes, puzzles,
cartoons...



The Band's On The Run!

...7 busy characters, 10 lost chords, 15 hours, 48 Traffic Wardens,
95 London Tube Stations, 126,720 square feet of London,
7 million Londoners ... 943 action filled screens.

PAUL MCCARTNEY'S

*Gives my
regards
to*

BROAD STREET

The new single is missing and the band have
gone home for the weekend — leaving you
just 15 hours to re-create the missing tune.

A race against time as you try to
find each member of the missing band.
You have to watch out for time
minerals, wandering and crash! A
clever strategy game, full of
excitement, brilliant graphics
and all wrapped up with
McCartney music!



MIND GAMES

Argus Press Software
Lynx House, 222 Regent Street, London W1A 1PP

For the Spectrum and Commodore 64/88

Available from W H Smith, Monks, Laskys
and all good computer dealers.



DAILY EXPRESS
says
'STUNNING'



HOME COMPUTING WEEKLY

CONTENTS

April 9-April 16, 1985 No. 107

SPECIAL FEATURES

Sound moves	10
Discovery I and Panda/Intellivision reviews	14
Graphics feature	20

COMMODORE 64

Welcome to BASIC	31
------------------------	----

ORIC-1 / ATMOS

Countdown	34
-----------------	----

TI-99/4A

How to program your TI	37
------------------------------	----

BBC

The balls, the balls	39
----------------------------	----

Scoopbox

Hackers have been in the public eye lately. Hardly there was the publication of the *Hackers Handbook*, which supposedly gave information on everything widespread fraud, and now two hackers have been arrested under the Forgery and Counterfeiting Acts.

Is it possible to forge a computer disc? Can it be more convenient than the first such prosecutions and discommodate two well known hackers?

It seems plain the process that the law is taking the situation on this matter. I wouldn't argue that right to do so but does that justify making a public example of these offenders?

John

If you have anything to say — if you disagree violently with anything we write or if you want to express an opinion — write us at *Home Computing Weekly*, No. 1 Golden Square, London W1R 3AE, and get it out of your system. We send a prize to the writer of each letter.

Editor: Dave Curtis
Deputy Editor: Jo Graham
Editorial Assistant: Marie Curry
Software Assistant: John Conway
Group Editor: Wendy Palmer
Design: Art Design
Copy Control: Barry Fowler
Ad Manager: Dennis Perkins
Asst Ad Manager: Ian Robinson
Technical Ad Manager: Chris Harrison
Classified Advertising: David Morris
Publishing Director: Peter Williams
Chairman: Jim Coombes

AMSTRAD CPC464

Return to Zarkon	32
------------------------	----

SPECTRUM

Sorting of the spirit of light	34
--------------------------------------	----

REGULARS

News	4-6
Win a BBC — competition	7
Verdict	10
Reviews	10-20
Book reviews	41
Year letters	42-43
Classified ads (start at)	44
Readers page	44

Coming Soon...

- Review of letters are welcome
- Free online on author Chris Thomas
- *Knights and Angels* includes — our in-depth look there

Argus Specialist Publications Ltd
No. 1 Golden Square, London W1R 3AE 01-437 0434

Home Computing Weekly is published weekly, except on public holidays. Printed by the Argus Press, 100 Fleet Street, London EC4A 3DF. Tel: 01-437 0434. Printed on acid-free paper. All rights reserved. Argus, Home Computing Weekly and the Argus logo are registered trademarks of Argus Specialist Publications Ltd. All other trademarks are the property of their respective owners. All rights reserved. All rights reserved. All rights reserved.

BASIC LIVING

by Jon Wedge and Jim Barker



NEWS

Hi, Robot!

Robotronics has added more possibilities to its computer robotics pack. Now it is possible to make 24 different robot flows from the 204 82 kit.

If you've ever wanted to build a kit with up to three flows, a four function multi-task, pedestrian controlled traffic lights or an aerial race you can do so with the robot kit.

There are expansion packs for Apple II, Commodore and BBC machines, but they will cost you another 204 82. However, this is still a competitive way to start learning about computers and machine control.

**Samuelson, Eric House, 4
Opreave Road, Blandford,
Dorset DT11 4LP**

Gift of the gab

If you have ever wished your C64 could talk, Chatbox has made it possible with its new add-on.

The Sweet Talker connects to the computer by the rear port 4, phone line carries the signal to the external sound system, and it's channelled through the TV or monitor.

There is no fixed vocabulary as the system uses allophones. To create words you string together the component parts, and feed these codes to the unit.

For £34.95 the Sweet Talker gives you spoken error messages, warnings during game play and prompts in business programs.

**Chatbox Marketing, 24 Ray St,
London EC1R 3BZ**



The voice of the C64

Software update

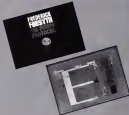
New releases are thin on the ground this week. The Fourth Protocol, based on Frederik Forsyth's best-selling novel, has been receiving pre-release promotion. Publication Machines claim advance orders of 70,000 — and the game won't be available until May 23.

Doug Fox, general manager of Publications, said: "If the game goes as well as we expect it to, we have plans to follow it up with more computer games backed by authors of popular books."

And a computer adaptation of Forsyth's *Day of the Jackal* man the cards, and should be in the shops by spring 1988.

AmigaSoft is releasing *Lode Runner* (see web page) version of gold. The money will reach its own Kingdom.

Frank Bronger of AmigaSoft said: "The game is all about entering stolen gold, so we thought *Kingdoms* would make a nice prize." To get your hands on that precious metal you must rub out your best challenge: screen, winning money will bring an AmigaSoft's follow up *Championship Lode Runner*, to be released in the months.



Screen dumps from Forsyth's Fourth Protocol

Title	Machine	Price	Publisher
<i>Dynastar Ten</i>	C64	25.95	Granada Graphics
<i>Ransom War</i>	C64	25.95	Granada Graphics
<i>Peak of Doom</i>	C64	25.95	Granada Graphics
<i>AmigaSoft</i>	Spectrum	24.95	CCS
<i>The Fourth Protocol</i>	Spectrum/ C64	112.95	Harborough
<i>Sub Striker</i>	BBC	25.50	Drax
<i>Mastermind</i>			
<i>Return to the Bridge</i>	C16/Plus-4	25.95	Solar
<i>World Series Baseball</i>	C64/ Spectrum	27.95/ 24.95	AmigaSoft

What a racket!

The end of April will be marked by the launch of Josiah Barrington's *Squash by New Generations*.

Available for the C64 and Spectrum, the game will simulate a full squash match and have a unique sound facility.

Josiah challenged Rod Evans of New Generation to a match and ended up winning his point of the game's first point, like how to stand upright when serving. It appears that the final score is a well guarded secret.

New Generation, The Bricklands, 18 Remybank, Llynedd-Wale, South SA2 4TD

Micro-Gen mystery

A package carrying the legend "There's a big one coming your way" came through the mail recently.

Further investigation proved the contents to be a disposable copy — part of a presentation for Micro-Gen's new game *Horizon*.

The game won't be featuring Wally Wink, star of the *Wally Wink* games. Micro-Gen promises that the game is more and more sophisticated than recent releases from Wally's.

Micro-Gen, 44 The Broadway, Broadnall, Dorset

Speedy Spacey

Interface 32 from Overseas Micro Centre is being billed by the company as a real breakthrough for Spectrum owners.

The new software, both hardware and software additions to the machine used as less than £40 it is claimed it will enable you to write any custom program to Microdrive card, range, so that it can be run straight from the Microdrive. Interface 32 allows you to stop a program at any stage and then save the results as a new file.

With this added speed it is unlikely that Spectrum owners will be drinking much coffee anymore. They won't have time to wait for the kettle to boil while their software is loading.

Overseas Micro Centre, Bridge 25, Overseas, Wrexham WPP1 4BT



Users unite

If you own an Atari 400 or an 800X machine you can now join a new formed user group.

Mark Linnik is expected to form a group for Atari/800X owners and will send further details to anyone who wants something as SAA. He is currently at Leicester where he can offer assistance as well as those who need it.

The MSS group have agreed by Tony Brown and to publish a newsletter featuring programming hints, technical tips and software reviews. All you need to do is send an envelope to his address below.

**Mark Linnik, 41 Woodfield Rd, London NW7 8BT
Tony Brown, Garsdale Mill, Wood 21, Warwick**

Josiah Barrington about to squash Rod Evans

Important!

Graphics got into our A'n'P Graphics Egg 2 Competition last week. The clue to our code breaker was jumbled up and should have read, DSR100 - EASTER. The code breaker is still FM 8000J 2 8010JND 0FF

Closing date has been moved to Friday April 26 1985

We apologise to everyone who got confused

Top ten

George is a very popular character if one designation can be anything to go by. We had our biggest entry for a number of months and over half found the 15 differences between the programs.

However, there was an error in the printing of the program. The program which was in Program 8, as a number of you pointed out. Thank you to those who alerted us of this error — which wasn't addressed.

The 10 new George owners are: David Hagan, Brighton; Frank Park, Woking; J. L. Wood, Oxford; Chris Cooke, Colchester; Alan Whitford, Boreham; Paul Campbell, 1973 15, The Grange, Loughborough; Ian Baker, Wolverhampton; Lisa Mullock, Loughborough; S.J. Nye, Bedford.

WONDERFUL WALLYS



AKHTER

COMPUTER GROUP

WIN A BBC SYSTEM!

There's hardware worth over £1000 on offer in our Akhter competition this week. The first prize winner will receive a full BBC system, with all cables, ready to plug in and run.

The competition is in two parts. The first part is published this week and the second appears in next week's issue. Both are easy to enter but you need both the coupons or your entry won't be valid.

The first prize is nearly 1700-words of computer programme. A BBC micro, complete with disc controller, a Sanyo colour monitor and a monitor stand make up the package which will be sent to the first winner.

There are also two other prizes. The lucky winner of the second prize will be given a Sanyo colour monitor and stand, worth over £120, while the third prize is a green-screen Sanyo monitor and stand valued at over £120.

Akhter is a major supplier of disc drive systems for the BBC. Akhter believes these units are now so reliable that it supplies a Gold Standard, two-year guarantee on the drives.

Akhter also supplies printers, monitors, computers and software to an expanding market. The company has recently been appointed as the official educational distributor for the Sanyo computer systems.

Despite its rapid growth the company still wishes to listen to, advise and recommend systems to the individual customer and would like to hear from any reader who needs advice. Phone 01753 442121.

We're giving away more than £1,000-worth of hardware this week. Jump to H1 Second part next week

How to enter

All you have to do this week is make as many words as you can from:

Akhter Computer Group

There are plenty of letters to use but all words should be more than three letters long.

You can use the words "computer" and "group". Please note that plurals and proper nouns are not allowed and all the words be found in the Concise Oxford Dictionary. You may only use each letter as often as it occurs in Akhter Computer Group.

When you think you've found as many as you can, enter the number of words on the coupon and make a note list of the words ready for checking.

Preserve the coupon and list carefully until you have completed part two which will appear next week.

You may score as many letters as you wish, but each entry must be on an official entry coupon — not a copy — and sealed in a separate envelope.

The rules

Coupons will only be accepted from residents of Great Britain. Publishers Akhter Computer Group and Akhter Computer Group Ltd. This competition also applies to employees, families and agents of our companies.

No cash prize. One from this week's competition and one from next week's will be selected next week.

The draw is done under strict rules at the time.

The company's decision is final and no correspondence can be entered into.

Akhter Competition**Entry Coupon (part 1)**

Number of words

Name

Address

post code

Computer owned

Attach your list of words as this coupon and enclose carefully sealed envelope showing list of the computer words which will appear next week.



In the second part of Brian Jones's series, he shows you how to start programming

WELCOME TO BASIC

Hello again. In my last article I introduced you to the origins of the language BASIC and the action of most of the keys on the Commodore 64 keyboard. Here are the basics to your "homework".

Firstly, the graphics characters generated by the Commodore logo key which, like when the Commodore and shift keys are pressed together as "1" and "2".

To drive a diagonal line down the screen, then clear a shifted M (i.e. hold down the shift and press M) if you are "in". Back to the origin and graphed then cursor down again. Continue alternating these two steps until the bottom is reached then?

The monitor and cursor board is easy once you find the right graphics characters, the ones which look up. Use the shifted "1" and "2" for the vertical, horizontal and cursor line respectively.

Now, before we get down to writing a program, try this. On the otherwise blank line type:

```
PRINT 2+2
```

and press the key marked RETURN. You should see 4 appear on the next line, then a blank line. READY had the cursor flashing away on the line under that. If you get anything else, clear the screen and try again. The return key is the "cursor" key. It tells the computer to take the action appropriate to whatever was on the line you typed. Now try

```
PRINT 12+1
```

and press return. Notice that the "1" acts as a multiply sign.

Pressing RETURN is a very important key. The computer can't guess when you've finished entering the parts of your task, you have to tell it when the calculations are made to be done. So in general if I instruct you to enter something 3 months ago it is not your return. The PRINT part of the task is an instruction from the vocabulary of BASIC which means "send the result of the following to the screen". We

can now make the use of instructions into a program. On a fresh line enter:

```
10 PRINT 6+4*9
```

When you pressed RETURN nothing much happened. Now enter the command RUN. This time when you pressed RETURN the answer 42 appeared. Wasn't you expecting 90? Well, BASIC uses what is called algebraic logic. It multiplies and divides before adding and subtracting. So $6+4*9$ is effectively $6+(4*9)$. If it didn't put brackets — but round brackets () are square.

But back to why we had to type RUN before we got the answer. The 10 before PRINT $6+4*9$ means the computer behaves differently. If the first to be calculated gives us a number the action taken is to store the line away as the computer's memory. If more lines involving with numbers are entered, then they are stored in memory, not in the order they are entered, but in the order of the numbers they start with. The RUN command tells the computer to go through what's in its memory and carry out those instructions in line number order.

Enter another line:

```
3 PRINT "THE ANSWER IS"
```

and RUN your two-line program. Notice that the double quotes round the message don't appear when it's RUN. Anything in quotes is reproduced on the screen exactly. Try

```
PRINT "6+4*9" 41
PRINT "2+2=5"
```

Now clear the screen and enter the command LIST. When you press RETURN, the two program lines are LISTED so we can clear the screen but it doesn't affect the program. How do we date the program? Answer: enter NEW. Do that, and enter LIST again. All you get is the message READY. That tells you that the computer is ready to accept your next instructions.

So far you've seen lots of arithmetic, but computer programs are usually mainly algebra — formulae to get the answer, given the data. RUN this:

```
10 LET Y=10
20 LET M=5
30 LET T=Y*M+M
40 PRINT T
```

This program calculates how many minutes old a person 15 years and 4 months would be. Lines 10, 20 and 30 are assignment statements. Lines 10 and 20 assign values to Y and M respectively, but 30 gives a formula to calculate T. The LET is to emphasize that it is a formula to allocate a value, not the operation to be solved. However, in most versions of BASIC, including Commodore's, the LET is optional.

Let's change the program to replace the data for your age. There's no need to run all over again, you can enter lines 10 and 20 with your values. You can use LIST to check that it's worked and RUN the new version.

Here's another one to try. NEW away the other program first:

```
10 LET M=16
20 LET K=M*PI/6000
30 PRINT M,"KILOMETRES IN KILOMETRES IS",K
```

Careful with the parentheses on line 20. See how you put the message and number. Did you make a mistake and try to move the cursor back to correct it, or clear the screen to try again? Well, you can't! Once you type the "1" the cursor key produces strange characters. I referred to this in my previous article. You can use the delete key, but it's best to correct an error.

You might also be wondering why we number programs in lines, rather than 1, 2, 3. It's so that if we wanted to add extra lines later, at between two existing lines, there are values available. Look through some of the BASIC elsewhere in Home Computer freely and open the line addresses.

Finally, two programs for you to try and write.

1 To convert 5 lines to pence.
2 To calculate the full cost per page of types set at four dollars (times for 419.95 including VAT) (Hint: to add 15% is working, multiply a by 1.15).
Answer next week.

MIRRORSOFT

£You can rerun again and again, for education or for the sheer pleasure of looking at the stars without clouds, buildings, light-glare, or driving rain.?

—*Personal Computer News*

£Altogether this is an interesting, informative and most valuable package which is to be strongly commended to every Beeb owner with an interest in astronomical matters.?

—*Acorn User*

£A definitive must for any aspiring astronomer.?

—*Which Micro? and Software Review*

£There is a mass of information in this program and booklet; it's here astronomy comes to life.?

—*Popular Computing Weekly*



£Star Seeker is definitely worth a look if you already take your astronomy seriously ... I would also recommend it as a resource for the family.?

—*A&B Computing*

ATTENTION ARMCHAIR ASTRONOMERS

Now, in the comfort of your own home, you can:

- Plot hundreds of stars
- Map the skies for any date or place you choose
- Name and plot constellations
- Simulate the changing night sky
- Locate planets and plot their orbits
- Dump screens to a printer

And plot the course of Halley's Comet as it approaches the Earth later this year for the first time since 1910.

Available for: Cassette £9.95
CBM 64, Spectrum 48K,
Electron, MSX, BBC B

Disk £12.95
CBM 64, Spectrum 48K,
BBC B

MIRRORSOFT programs are available from good software stockists everywhere or direct from:
MIRRORSOFT
Mirror Group Newspapers Ltd.,
Holborn Circus, London EC1P 1DQ
Telephone: 01-822 3580

SOUND MOVES

Clive Gifford continues his series on the Amstrad CPC464's sound capabilities

In my last article I dealt with the ENT command, but only for the purpose of a single rise or fall in pitch. What happens if we want to create an envelope with multiple rises and falls? The answer is simple and helps to show the flexibility of the sound commands available to you on the Amstrad.

The group of parameters following the envelope number are all contained within one rise or fall. For each additional rise or fall, it is just a matter of adding on a separate group of parameters. You can have up to five separate groups after any one ENT command if you wanted a sound making half a second to rise and a quarter of a second to fall back to the same level two each consisting of five steps: then an ENT statement could look like this:

ENT 1, 5, 12, 10, 5, -12, 5

By specifying the rise and fall in the envelope and by adding a mean up in the envelope number we can create a tremolo effect. The mean step makes the envelope consistently repeat itself — every half a second in the ENT command. Here's a good

example of a tremolo envelope:

ENT -1, 12, 4, 1, 12, -4, 1

The Volume envelope is just as, if not more, useful than the tone envelope for creating a wide and varied range of sounds. This envelope, controlled by the command, ENV, is somewhat different to the previous envelope.

When a note is played its volume may not remain constant. Think of a piano key being pressed. It reaches its highest volume very quickly before dying away almost to zero. In contrast, a note from an organ maintains a constant volume right until the very end of the note when it fades away. This principle is behind the volume envelope and is called ADSR. The idea is that every sound goes through four volume stages, the order where the volume of the note reaches its peak, the decay when, at its same segment, the volume falls back from the original peak, the sustain where the note's volume is either maintained or gradually reduced to a slower rate than the decay stage, the release where the sound's volume falls to zero. The simple

graph (Fig 1) shows a typical ADSR sound shape.

The ENV command does have limitations to ENT. Each note starts with an envelope number and both have groups of parameters. ENV's parameters, however, control the number of volume steps, the size of each step and the length of time each step lasts. A simple ENV statement would look something like this:

ENV 1, 5, 1, 16

This would result in an envelope having a total of half a second and consisting of five volume steps each rising three volume steps.

For a full ADSR effect, you need a full set of parameters for each of the four parts of the volume phase. This results in a variable form of a statement with no less than 12 different members. Don't be put off by this statement when broken down into separate groups of parameters, the task of constructing efficient envelopes becomes a lot easier.

Below are a few envelopes created using ENT and ENV along with a simple sound effect attempting to simulate an envelope. Pressing a key on any of the envelope-based routines will make the computer play a different note and you by hearing a few examples you will be able to hear what some

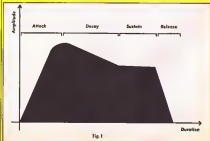


Fig 1

envelopes work best with higher and more wide lower pitches of bass.

Also start with SOUND parameters incorporating a

volume envelope, the volume level usually controlled by the fourth parameter of the sound statement in line 10 is controlled as passed to the envelope.

```
10 ENT 1,15,2,1
20 ENV 1,15,-1,1
30 WHILE INKEY#="" :GOTO
40 SOUND 1,1,INT (RND*4000)+20,15,0,1,1
50 GOTO 30
```

```
10 ENT -1,5,-15,1
20 WHILE INKEY#="" :GOTO
30 SOUND 1,1,INT (RND*4000)+75,50,15,0,1
40 GOTO 20
```

```
10 ENV 1,15,-1,3
20 WHILE INKEY#="" :GOTO
30 SOUND 1,1,INT (RND*3000)+100,45,0,1,0
40 GOTO 20
```

```
10 FOR G=1 TO 5
20 FOR T=7 TO 0 STEP-1
30 SOUND 1,50+2*T,1+3*T,T
40 NEXT T
```



Get more out of your BBC Micro with the New Marconi RB2 Tracker Ball

Marconi's new Tracker Ball is superior to either a mouse or joystick and is easier to use.

The RB2 design incorporates Marconi's vast experience in making Tracker Balls for Air Traffic Control and professional equipment which demand maximum performance and reliability. It is built free and gives more precise positional control - the cursor position on screen relates directly to fingertip movement on the ball. The three push buttons normally control the delete, return and copy functions, but you can also assign your own functions to the buttons.

It's perfect, whether your micro is your hobby or professional tool, or a source of low cost CAD/CAM applications. It's ideal for word processing and games too, and unlike a mouse needs no regular cleaning.

If you're a Commodore or Spectrum user, don't despair. There will be a Marconi Tracker Ball for you coming out this Spring.

For full details please complete the coupon.

ONLY £59.50



FREE!

Marconi Program
Graphics Program for tape or disk.
Mouse Drive Program on floppy disk.



To: Central Trade Marketing Ltd,
Aston Lodge, Aston Road,
Kewstoke, Woking, Surrey GU24 0NP
Tel: 0423 81201
Please send details of the new
Marconi Tracker Ball.

Name _____

Address _____

Tel _____



VENTURES

Peter Sweeney's in a jam this week with Danger Mouse in Black Forest Chateau. Read on to find out more.

Time to go a-hunting once again with H&W's regular column reporting and reviewing on everything of interest from the world of advances and adventures (video adventures). This week I shall be in a jam with *Danger Mouse in Black Forest Chateau*, comparing *Colonel Cass* and climbing *Worms*. Palace The helpmate will be dealing with *Yellow II*, vintage video deal on, if you dare.

Reviews

Danger Mouse is one of the most famous British cartoon characters. He comes with a name, a profession, a dog with a head like a football and a car. *Danger Mouse* is, however, the hero of many of the nation's children, along with quite a few adults! After the 1994 movie from Creative Sparks, *Danger Mouse*, which was more of an arcade game, comes *Danger Mouse in Black Forest Chateau*, an adventure designed for younger players in mind.

A grunting policeman has been tapping the world's leaders, creating a sticky problem. The source is in the *Black Forest*, and that is where you must go, to track down the evil perpetrator, who, it seems to me, is not, is a certain *Madame Goodbody*. Goodbody is close to paw of the time.

This surprisingly simple cartoon is far more complex than you want playing. In fact the game is in two parts, one on each side of the tape. You start in a forest clearing, depicted in excellent graphics, to see all the locations. On screen is some simple text (though far better written and slightly longer than many "adult" games), then a question along the lines of "What next?" followed by a choice to enter the forest, follow the tracks, go to the bar or climb a tree.

Control is simple. You use the space bar to highlight, then press RETURN, and the game acts accordingly.



You may think that kind of multiple choice leads to a very linear, channelled adventure. But no, *DMBFC* is a very entertaining game. As I mentioned earlier, the graphics are very good, particularly those of the cartoon characters, which are drawn in highest resolution. The text is attractive and witty, and the progression, whilst not amazingly original, are interesting and not always as easy as they may seem at first.

For those eight-year-olds that progress is almost all, it is excellent and should provide a real challenge, whilst not being impossible. If you go hopelessly wrong Goodbody often comes out with a hint. Older people will probably like it too, particularly as puzzles — although it's a bit prissy for them considering a won't take as long to solve. DM fans will love it, of course. *Danger Mouse* takes time to reach 27-95 from Creative Sparks.

I recently received a large number of letters from *Dedworth*, the book publisher. Amongst them was the originally titled *Colonel Cass Adventures*, another

review of the original *Colonel Cass* and *Worms* mainframe game, which is one you don't know, missed the whole world of computer adventures (good thing too, or else I would be without a hobby). The game encompasses under many titles on the home video. *Colonel Cass*, *Colonel Cass* or the *British Level 9* version, *Colonel Cass*. I thought it was time to stage a fight — so, here we go, with *Level 9* *Dedworth*.

The scenario is pretty simple, but for a change I can't call it unoriginal. Having noticed a stranger in the museum, you are given a map, showing the location of some hidden items which contain fabulous treasure. The map shows away just to you approach the museum, and you stand there.

First locate the entrance, then work your way through a network of rooms, passages, traps, puzzles and mazes, which are enhanced by various difficult enemies. Some of the problems are pure strategy, such as the trap, maze, dragon and birdcage. At the



mountains to the Duckworth game (i.e., you can't call yourself an adventurer until you have played this).

It is verifiably impossible to compare the actual games, which can be recommended to anyone, as long as you can tolerate games (here, not plenty on this game) that which version should you choose?

On the whole, the differences are very subtle. The vocabulary is more friendly in the Duckworth version, but Level 8 provides more verbose descriptions the former prints. "You are in a maze of twice mazes, of after" while the second says "You are in a maze of twice little mazes, all the same." The vocabulary is more

creative in the Level 8 version, but I found it slow and not very enjoyable.

Procrastination is better on the Duckworth game, which also has a helpful, efficient list, and offers you help if you are struggling — in return for hard-earned points. However, Level 8 has better instructions and packaging, and also introduces a new real game, replacing the original two locations with 32.

I would choose Duckworth's version if I was a Commander 64 player. It is 64-oriented in 67/68 and generally more pleasant to use. The Level 8 game is not up to the high standard of all its other material, but, once again, is good, and of course available

on the more recent, including the oft-ignored Ginc and Minnoch, plus even the Lynx and Macrom.

Finally this week, another Duckworth game. This was the most programming techniques as Colonel Cave Adventure, namely those outlined by Peter Corrad in his book, *Engineering Adventures on the 64*. He was the author of the afore-mentioned Colonel Cave Adventure, but this is written by John D. Ryan.

You are transported, for the sake of convenience, to a mythical land, and for some reason are standing on a mountain ledge. Nearby is the

entrance to a palace, filled with — surprise surprise — treasure. Beware the greedy type, however. The door stands behind you. Can you escape with the riches?

The fact that this palace is on a mountain seems to make very little difference to what is an extremely average game. There is nothing special, original or new, location, descriptions and problems all seem familiar. Vegetation is adequate. There is a real rip-off of Colonel Cave in one point — a ghost appears and keeps throwing a magic ball at you, which frequently misses.

In general, although competently written, I can't think of any reason to spend £7.95 on this, which explains my Ventures rating of 2 stars.

Helpline

My sibling ancestor Corrad has been kind to me, on Volume 17 recently. She did some long reviews which I had overlooked — even one to the book she wrote a disc. If you're not sure at the top of the 64 steps, make a note: you have read the book, you found some stepping disc space. Take the book from the shop, to pass over those pictures. The real pull was the end of the review, and if you need some more, pass the review. You'll find I will and a purchase for the game, as well and search the three. To go back up to the book — pull a few things.

System can be a huge problem opening a web. You must only be carrying those characters you need — leave the rest behind. Then just read the last and new story.

Alan 8 players might be moved away by what you have described in "These things which look like your material, make" the right way will control drop something on it. The same has some blocks from venturing and making. Thanks to Chris Lavelle for supplying these tips.

Most of my work is on the same, along with the other Duckworth stories, in excellent reviews, and more extensive lists. Happy venturing!

Send your problems, hints and news on adventures and adventures games to Ventures, Home Computing Weekly, No. 1 Golden Square, London W1R 3LB.

PERIPHERAL

Check out what our expert reviewers think of the **Discovery I** and **Panda** cassette interface before you buy

Panda Cassette Interface

One of the drawbacks of all Commodore computers is the requirement for a dedicated cassette recorder. This is not only wasteful but also expensive. A number of companies have identified this problem and produced products such as this interface to make life easier.

The concept is quite simple. This interface is a small box which plugs on to the cassette port of the 64 or VIC. The usual **LOAD**, **SAVE** and **REMOTE** leads come from the interface allowing connection to many different types of recorder.

The construction of the interface couldn't be simpler with all leads clearly marked. I would have liked an order on the unit to preclude accidental connection upside down. Saving and loading operations are made as before, except that when you press **REMOTE** after entering the command the screen blanks before you see any key-pressing instructions.

To assist the use of the unit, there are two lamps, one labeled **SAVE** and the other **LOAD**. The **LOAD** lamp flashes when a program loader is loaded or the program loads. This helps with the saving of the tape. The **SAVE** light glows when programs are saved. A power switch is provided to cater for different recorders and tape types.



Connects Commodore 64[™] and the 20[™] computers to standard cassette recorder

C64-100

Easy edge connector with 2.5mm and 3.5mm DIN-type plugs

CASSETTE INTERFACE

For VIC 20[™] and Commodore 64[™] Computers
Suitable for loading High Speed Tapes



British Made

Overall, an excellent product which works well. The unit does alter the value of **RAMDISK**, which could give problems with certain types of software. A.W.

Price £17.95

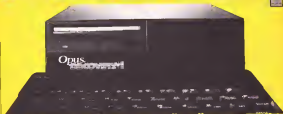
Publisher: Popt

Address: PO Box 58, Pen-
borough

C64

VIC-20





Discovery I

Discovery I from Open is a 5.25-inch disk drive for the Spectrum — and much more. Firstly, the Discovery package also includes a joystick port and a Contrelog parallel printer port.

The unit is a large black box, which is attached to the rear of the Spectrum — a three-pin cord connects under the computer and is screwed to it for security. The drive is then above the keyboard to the left, while on the right there is room for another drive. The new unit supplies power to the Spectrum via the edge connector so only one plug is necessary.

The drive operates using channelled Microdrive commands, so a catalogue is obtained by CATALOG and a load command is LOAD "m". "m" is "m". However that is where the similarity to Microdrive stops, the drive can much

quicker than Floppy and, most importantly, much more reliable.

Also the use of disk rather than serial tape has allowed Open to introduce random access files, thus making the Spectrum with Discovery I a much more powerful package, many more database applications may now be implemented as a file and needn't be read into memory simply to extract one item.

The printer port requires a special cable at the Spectrum end but may then be connected to any Contrelog printer. The Discovery requires that all output should be opened with OPENOUT, "m" and then programs may be listed with LIST in the normal way. The one bad feature of this is that the Spectrum graphics characters are all printed as "x" which isn't very useful.

The joystick port is switched

on with the command FORMAT "j". "A", which is strange but works well enough. This does mean that you must remember to do this before loading a game from tape but I assume that any disk-based software would do this for you.

This brings me to software. Open has assembled a number of well known titles for the benefit of the Discovery unit. The software will be copied as 5.25-inch disk and will consist of two or three major files, costing at about £15 — not bad value. The Discovery I unit

will cost £599.99 and as it is a bargain, if you consider the joystick and printer ports. Also available at this launch will be the Discovery Plus, which is the second drive for the Discovery I and Discovery 2 which has two drives already. Finally I should mention that Discovery is only available from stock. **A.G.B.**

Price: £599.99

Manufacturer: Open

Address: 128 Capenhurst Rd, London SE23 3RE



... **IT'S EGGSILLERATING**

ANF
SUBSTANCES

SOFTWARE



Wizard's Lair

This new game from Bubble Box is an Arc-Adic look-alike. However, instead of being trapped in a haunted mansion looking for the right keys to let you out, you are searching underground caverns for parts of the golden lion, the key to your escape.

The game starts by loading and apart from an initial problem which was resolved by experimenting with the volume control, is quick and trouble-free. Following a colour title screen, an options page is displayed. On this you have the choice of Komplex or Simple 2 joystick, keyboard control or any defined key.

Plotted the game is a fast and furious experience in the guide Porcine Pete around a vast subterranean maze of caves, rooms and passages. In the various areas of the maze there are treasure to be collected, articles of food to help your strength levels and extra weapons to aid you in your fight against the demons of nature you encounter.

In some rooms there are magic spells. If you collect one of these it is only useful if you have some gold. You then have a choice of using treasure or extra strength or weapons. The graphics in the game are well done, although very similar to no perfection. In all this would seem to be a case of looking at a good game and describing it with the rough edges smoothed off to make an even better game. **M.W.**

Price £6.99

Publisher Bubble Box

Address 87 High St, Tonbridge Kent TN11 1HX

SPECTRUM



Sam Sleat Safe Breaker

Grumble Grumble, who brought us both quality friends as Henry Main, Beaver Main and Percy Pigson, now presents Sam the infamous Sleat. Your task is to let Sam on his house-breaking spree. You must find a bomb and a remote with which to break into the safe, and then collect the diamond and bag it.

You move about the various rooms via a network of mouseholes. Each time you enter a room, you must activate a series of pins sticking out of some wall. Use these to stop the alarm, but since they have a habit of moving up and down, this is rather tricky. Since I haven't managed to complete this yet, I can't comment on the pace of the removal. Each room is occupied by tender snakes, as expected, which impede your progress. There are also traps to pick up. Somewhere in each house is a bottle of toxic river which enables you to complete the task at hand.

The graphics are to a good standard with the screen representing either a room or part of a room. Animation is average. There are four houses with 20 rooms in each, which offers a fair variety. The instructions supplied with the game are good, listing a number of questions answered. The main screen of keyboard and joystick services are covered too.

Overall, rather a weak game which doesn't really compare with the state of the art software for the Spectrum and is of limited novelty. **M.W.**

Price £6.95

Publisher Grumble Grumble

Address Unit 10, The Parkway Ind Centre, Banbury St, Birmingham B7 4LY

SPECTRUM



Dragon's Gold

The greatest death of moving graphic adventure games seems set to continue.

Dragon's Gold is yet another version with chunky graphics which fall well behind the quality set by others.

Without the need to collect objects or rooms, and with three lives to squander, success is entirely dependent upon fast reactions on the joystick.

The goal is to be found within a six-roomed castle, small by any standards.

Hazards to be avoided are dust, beetles, spiders, robots, moving walls and of course the dragon.

You arrive at the castle carrying an empty chest. While the chest is empty you won't go; you walk through the castle to the dragon's room, wherein lies the gold.

On finding the gold you go to the first room where the chest was deposited and claim the reward.

A guaranteed 1000 points for bringing the gold out safely is increased by the addition of bonus points. These will accumulate each time your maps create your shorter simulations out of the maze.

Full instructions are provided on screen and are repeated on the cassette only.

The extremely steep in games programming helps all ages of computer. Even the simple to some extent has been cut to the core.

All the rooms are presented in ground plans, with a few a view of the castle, however small.

Dragon's Gold certainly doesn't represent value for money in today's volatile software market, where better graphics and sound are available in abundance. **D.H.**

Price £8.95

Publisher Amstrad

Address 189 Kings Rd, Broomwood, Essex

AMSTRAD





Vampire Killer

This game was originally released for the Spectrum and is now available for the Amstrad. The objective is to get from the seventh floor of Dracula's house up to the fifth floor and kill Dracula before midnight, otherwise he flies away. You are allowed eight attempts to do this. On each floor there are twelve rooms. Some are empty some contain items you need to kill Dracula.

Your score depends on how many items you collect on the way. Arrive without enough of these and you can't kill him — he kills you.

There are lifts to take you between floors — some go up and some go down. On the way you must go through bars which you can shoot, if you have any bullets left. Some doors lock themselves that "block" you. Too many blocks and you run out of the house terrified!

I liked the title page, which is just as well as the tape takes 10 minutes to load. Loading seemed awfully slow, about a 10-20 second of first-time users. Instructions are clear and simple. There are three levels of difficulty, each becoming dead giving less time to kill Dracula. The graphics are colourful and the sound is outstanding, although a little soft. My response was slow, and my vampire-killer grew rather ponderous over the course.

After a while it all becomes rather predictable and tedious — I kept wanting to go for a cup of tea. However, my attempt to produce cheap software for the Amstrad should be applauded and this game is certainly very attractively priced.

A.W.



Give My Regards to Broad Street

You've seen the film, heard the song, now play the game!

The plot of the film is used for the game. You play Paul McCartney and you have lost the master tape of your latest production. Thus the game involves running around London as your car attempting to meet up with the members of your band. This is made easier by the fact that all the band use the tube and you have a computer in your car which tells you when any member of the band gets in (or out) of the tube.

When you manage to meet a band member he gives you as many notes of the song as he can remember and the whole song is recorded.

The graphics are excellent and consist of a large map of London which scrolls in the direction of travel. Drums make a tube station the car can stop and then a view of the station is shown with a few famous landmarks in the background if appropriate. Sound comes of famous McCartney tunes such as *Band on the Run* and *No More Lonely Nights*.

The game is very difficult to master in one run. First manage to control the car and then learn the likely movements of the band members from tapegrams on the tube.

The game comes with a large map of London showing all the tube stations which must be memorised if any progress is to be made.

This game is excellent and highly recommended. J.G.L.

Price £7.99

Publisher: Argus Press Software

Address: 222, Regent St., London W1



Android One

A high-speed, action packed arcade game that requires instantaneous response to the many alien attacks encountered.

Three aliens are of four types: Gorgons, Slugs, Bombers and Wanderers. Each attack in their own right and need to be avoided throughout the game.

Disappointingly you have to overcome the distance modernisation of the reactor complex, find the transporter capable to enter the reactor chamber and subsequently find and destroy the reactor.

On completion of this hazardous mission you then have another type of freight with even more danger.

Good graphics and sound from the game is left giving more depth than the two-dimensional screen imagery.

Never content whether I had five lives, only four to spend, it did seem that a lot of missiles was spent blowing away at brick walls which were obviously built when Britain was 100 years old.

The slowly designed opponent screen with a scrolling message along the bottom line leaves no doubt about the action to be taken.

User-friendly throughout, an excellent game which is clear and concise is followed by a well characterisation, rather being largely an imagination of mass action and shoot-out the program looks very original too. And it nevertheless a good representation of the game.

This is greatly enjoyed for this type of game, which is not confused with the almost 3-D graphics and expensive use of the Amstrad's sophisticated sound commands.

If you need a busy hour then this is as good as any other, but that's all.

D.H.

Price £7.95

Publisher: Vortex

Address: 24 Kansas Ave., off South Linsbury Rd., London E15 2SL



Flipped



Hooked



Keen



Yawning



Comatose





Wiggler

It's the second Magazine Menagerie, folks, so wriggle right up! You created just one of the contestants at the off? As soon as you start to follow one of the other maggots, however, you soon realise that this is no ordinary arcade game.

You start in the garden, a complex mass of walls and flowers neatly arranged in full colour. Though the maggot characters are good, the interesting bits, bugs and spiders which begin to assault you are really rather nice. With luck, you may find some aid powder to help you, as well as several other useful objects.

This is only the start, because if you manage to find your way out of the garden — and it's not easy — you discover that this is an adventure with many locations, hidden down into four major areas, the garden, the scrubland, the underground, and the mansion, to say nothing of Hell! Each of these has its own hazards and characteristics like platforms, levels and conveyor belts.

Your eventual aim is to find the Hatch, but it will certainly take you many evenings of learning the significance of the different objects. You won't learn the maze, however, and it's different each time! Good sound too, with a "music to wriggle by" track on the tape.

A number of keyboard control configurations are offered for, together with Kamperion and Bender profiles, and the package is distinguished by attractively drawn and full instructions on the illustrated relay card. Attracting fan, well produced and in the right price. **B.M.**

Price: £5.95

Publisher: Kazzard: Robin

Address: 77 Dyer Rd, London NW6 3DB

SPECTRUM



Firstword

One of the nice things about the C64 is that with a printer and disc drive it can make a useful business machine at a relatively cheap price. Firstword is a word processor for such a set-up.

It's worth mentioning that the program isn't suitable for doing sequential files created by other programs. Firstword stores data as program files and can only read files created and stored by itself.

The software is supplied on disc and will only work with a disc drive — the tape is not supported. Several printers supported via a suitable interface (C64 printer/MS212) work, although I was unable to find out whether parallel printers connected to the user port will.

The comprehensive 48-page manual comes in a set of loose sheets held together in a hard-backed ring binder. One problem is that pages can easily get mixed up, as some come without pages 19 and 41.

When entering text any leading space/blank line will be ignored. There are just a few special control characters. I could become impatient that the whole program is presented down. You can set the screen to your own requirements and use it in a very flexible way.

All text editing and discussion comments are entered using menu options which appear at the bottom of the screen. Selecting an option

takes you on to a sub-menu; this may seem long-winded if you know what you are doing but if you don't have the manual handy then it can be a great help.

Insertion and deletion of single characters and lines is available directly. In block mode you can delete, copy, transfer and save blocks of text after you have specified the range of lines. Find and replace is available as a menu option. You can work with either single words or a string of up to 25 characters.

Mail merge is available, and there is a built-in calculator — very useful. You place the cursor over the various numeric sections in the list, perform the basic mathematical functions and the answer is shown somewhere else on the page. Ideal if you are preparing a bill or totaling up amounts.

When you print out your document you can specify header/footer messages, automatic page numbering, justification of text, left and right margins, print type, etc. The flexibility and versatility makes the large changes to the output are very simple to achieve.

My only gripe is that the price is slightly too high for what is only a word processor. Some of the features may also be used as a text editor. From a programmer's point of view it would be useful to be able to do this as well. **B.A.**

Price: £14.95

Publisher: First Publishing

Address: Horsham Rd, Pangbourne, Berks

C64



Sir Lancelot

Increasingly, to compare this to Magic Maze, to which it obviously owes much. Here we have a maze with 24 rooms, 200 areas the aim is to collect objects, which awarded by scored moving box and hole. The maze itself is catchy, but the game itself is frustrated only by bugs and bugs.

Unlike Magic Maze, access to the rooms can be changed. On the main screen, which has no "help", you arrays of objects are winning collection. Each one represents a further room. When you collect the object you are wished away to that room to try your luck, and if you succeed in clearing that, you are awarded to Merlin's Magic Tapestries, to select another object and room. The whole lot can be seen from the demo mode, and they are certainly a challenge!

Graphically, the game is slightly more sophisticated with some multi-coloured sprites, and a better selection of colours. Though no green-screen option. One of my favourite games (I'm biased) the graphics in this float on the Atari games console. Smooth and impressive but with a slight drawback.

The real shortcoming is the movement of Sir Lancelot, where you control. Surprisingly, he can be persuaded to walk on this air, but won't jump normally. He needs lateral movement too!

A tricky, addictive, absorbing game which capitalises on the Atari's format, without breaking the bank. It may not have the answering "wow" appeal of the "y-y-y-y" conversion, but offers many hours of tedious enjoyment. Recommended. **B.M.**

Price: £5.95

Publisher: Mithras House

Address: Castle Yd Hse, Castle Yd, Richmond TW9 6TF

AMSTRAD





Snapshot

Well, I suppose it had to happen. After the unbelievable International Soccer it was on the cards that one day there would be the launch of a game. The layout of the game is pretty standard. You are given the view of a section of the playing area. As the action starts, the screen will scroll to follow the action — just like a TV camera.

The game is for two players only, which is a bit of a shame. Only one player from each side is on play at any one time. This player has a different colour to the rest.

If the puck is loose, the nearest player will approach it, even if they aren't the current player. Under control, if another player gets near the puck, control will pass over to that player.

The goal keeper and defender are linked so that both can be controlled by varying the handling of the joystick and keyboard you can make the players perform different actions. The goalie, for example, has three set actions. You can even bodycheck an opponent, but don't decide it or you'll get punished.

The graphics are excellent with accurate design of figures and realistic animation. The background is in two colours but looks effective. The crowd is a mix of faces which move during the game. The use of sound is limited but does a reasonable job of speech and applause.

Overall this is an excellent and very exciting simulation which is good value at the price.

A.M.

Price £9.99

Publisher Activision

Address: Unit 18, Victoria Ind Park, Victoria Rd, Banford, Kent

064



Pascal 64

If you're tired with BASIC, or looking for an easy way to produce machine code programs, then the new Pascal compiler is sure to interest you. It produces machine code programs which, once compiled, can be loaded and run without using the Pascal package — and you write these programs not in a difficult low-level language but in a highly structured, high-level language which many people consider is far easier than BASIC.

The disk contains a loader and a linker, for writing existing programs into new programs — both of which you can transfer to your own disk, if you wish — as well as the compiler, and comes with a small 70-page (book-style) manual. This is clearly intended to explain the rudiments of Pascal to experienced BASIC programmers, rather than to teach programming to complete beginners, as does not repeat any information which is adequately covered in the Programmer's Reference Guide.

If you are not already familiar with BASIC you would probably find this package incomprehensible — and if you have no previous knowledge of Pascal you would be well advised to obtain a good book on the subject, rather than relying solely on the manual. A lot of useful reference books are provided.

Pascal programs are written using the normal BASIC editor, so it is possible because the Commodore doesn't check the syntax of BASIC program lines on every Refresh line, therefore, has to run with a line number, although this isn't normally required in Pascal, and are ignored by the compiler. This program is saved on disk as a

Price £10.99

Publisher First Publishing

Address: Unit 259, Horsham Rd, Horsham Pk, Pangbourne, Berks

BASIC program, then the compiler is loaded and the Commodore is a slow process, a demo program from the manual, about 25 lines long, took several minutes to compile. The compiled version is automatically saved on disk. It then has to be loaded using the special loader program, after that, it can be saved and re-loaded in a normal machine code program.

The most striking thing about Pascal is the wide range of data structures which are supported — real, integer, boolean, char, array, packed array, string, set, record, file and pointer, plus user-defined data types — and these aren't enough for you. The most most sophisticated feature is the structure of the programs, which have to be written as blocks, in the way that BASIC programs should be written but all its other aren't.

This version of Pascal includes commands to set up and clear the screen, set and clear points and to define arrays, but there are no general sound commands — FOR is there to be used here, as is BASIC. Machine code routines can be included; the same company provides an assembler/linker which can be used in conjunction with this package. There is no provision for including BASIC routines, but you could presumably use Pascal to produce a machine code routine to be called from a BASIC program if you want to mix the two.

The use of files, including source files, is well covered, and there is also an interrupt command, allowing instantaneous execution of the main program and a subprogram.

Overall it's an interesting package, and can be recommended to complete BASIC programmers willing to move on to something different.

M.A.N.

064



Indra

For the World's greatest psychic, "Recover your Secret God Status, believed to be broken into 24 parts and hidden in secret Real Temple".

It makes a change from Action Hero or the usual leader chasing adventures. After an introduction which gives instructions and advice upon how to deal with the dangers you will encounter on your adventure, you are treated to a lengthy, awesome performance of computer generated music before commencing action under the temple.

The temple cannot be physically entered to a final field is established in the centre of the screen where the recovered pieces of status are collected. The pieces are distributed round the edge of the screen. To begin with it seems a simple task to collect and assemble the status, but you have to contend with many types of enemies which float around and get in your way. A force field protects the precious status and a real enemy, resembling a crab, can attack at any time.

Added to this is the problem of replenishing your psychic energy by collecting supplies as they appear. There is also a problem due to the narrow entrance to your final field. Any collision with an walls stops a life lost.

Highly levels of play await players who can assemble the status but I found the first level difficult enough. There are comprehensive written instructions delivered at a most unusual way as well as sound on/off and pause facilities. An outstanding price.

J.D.

Price £2.99

Publisher Purobit

Address: Wellington House, Upper St Martin's Lane, London WC2H 9DL

BBG





Alpha-Beth/Alpha-Gen

Alpha-Beth is a computer game which is fun to play and has the added bonus of being educational. After first loading a menu page is displayed. From this you can choose whether to play with the keyboard or joystick, change the keys used to play the game, display or alter the high-score board or load an alternative database — that is where Alpha-Gen comes in.

The graphical content of a screen depicting a computer (the VDU) then has a question for you to answer. You do this by making both jumps across the keyboard to the appropriate letter and then entering that letter.

When you have completed the word or words of the answer you take back to the letter key in front.

There are, of course, the obligatory scores being to step you on your journey around the keyboard — these can be a nuisance and detract from the overall performance.

Alpha-Beth comes with an in-built general knowledge database. The publishers hope that as future databases for a wider range of subjects will be available.

Alpha-Gen is a separate package which gives players and teachers the opportunity to build sets of questions relevant to the situation.

Overall this is a good idea well implemented, with the right balance of fun and learning. At £5.15 it's a good buy. **M.M.**

Price £5.15

Publisher: A.T. F.

Address: Unit 3, Canal Side Ltd, Woodhouse 24 Lane, Leeds, LS16 5SL.



Quick Thinking

An educational program which is entertaining and good value for money? Read on.

There are two "game" on this cassette, each offering practice on the basic arithmetic skills.

First there is *Brain Vaders*. You choose whether to add, subtract, multiply or divide. A flying robot with a number on a cross on the sky and drops a robot which also has a number. You have one chance at typing in the right answer. If you're correct you destroy the robot, wrong and it lands. When five robots land you are destroyed as a victim of pyrotechnics! There is also a change of skills which will stretch you.

The second program is *Robot Tables*. Again you can choose skill levels and specific tables. But in this program you also get to choose foreground and background colours.

The idea is to make quick decisions. A machine is changing away making robots. Along the conveyor belt come the boxed components which are numbered and have to match the responses in the multiplication table you're working on. Sounds confusing? It's quite a simple idea but sounds complicated when you explain it. A good focus is the ability to check for persistent mistakes after completion by the visual representation of good and defuncted robots.

As the title suggests it's not intended to teach but to sharpen your reflexes. For this purpose it is excellent. So long as it's taken in small doses (its robotic could prove to be quite valuable). Enthusiastic graphics and simple to operate commands, which in this price has to be excellent value. **M.P.**

Price £3.95

Publisher: Newtonsoft

Address: Holborn Circus, London WC1P 1DQ



Tales of the Arabian Nights

"The sage of Baghdad the Kalendar Prince on a quest to find the Phoenix Amulet from the hands of the evil Sultan Saladin." So reads the blurb.

As the Prince you have to work your way through eight screens to find the Phoenix and fly over the city. Most of these have similar objectives: to collect the various letters which spell out the word *Arabian*. The first screen, for example, has you on board Saladin's ship avoiding an iceberg, volcano and a dangerous land while it steams in a race. Three of us were struggling for a long time to complete this screen and found it too difficult. It may be that you have to collect the A in a specific order but we couldn't get down from the rigging after avoiding other obstacles. The art style was frustration. Particularly annoying was the fact that the letters were replaced when you lost a life even when you were on the point of completion!

Perhaps in anticipation of this there is an option to turn the other screens which have flying carpets, battles, cities, a river and even a third carpet warms called *Abominable*!

Disappointing choice of colours which seemed imposed to be although the graphics were otherwise well drawn and imaginative. Some of the animation was flickering and spoiled the overall smoothness of the visual effect.

A good game in principle but I would have been much happier if I could have got through the first screen, so be prepared for a rough challenge. **M.P.**

Price £5

Publisher: Interceptor

Address: London House, The Green, Telford, Shrop



The Ring of Darkness

A diversion from the Spectrum, you mean, of a role-playing adventure/fantasy/arcade game. Some confusion, huh? During loading a line screen is displayed, then you are asked to define your character. Having named the noble *Northwester*, I chose to make him an elf with rather more intelligence than strength and agility. He could have been a warrior or a thief, but with different results.

Leading these rogues, and when over, a small non-animated back-view is shown on a map-coast-map, which is filled with forests, lakes, sea, hidden magical forests and the occasional castle. These are the screen elements to show a plan of the screen on which your character is shown. As with the rest of the game, you can turn him and your cursor keeps to the corners of the screen. When you see any new weapons, food, transport etc.

Beware the pits, however! He sinks your goods. In each castle is a king who, if you ask, will set a task — probably involving the object — at your journey the land.



Though graphically rather crude — some animation would have been nice — the landscape scrolls very smoothly towards your man. Also beware here is a vast underground maze, which, should you enter it, is drawn in very fine 3-D perspective. Goodness knows how you get out though! I need for app.

Price £9.95

Publisher: Warwick
Address: 38 Upwood, Park Rd, Bedford, Middlesex MK43 1PT



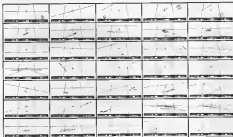
MYRDDIN**30 LANDMARKS
YOU CAN FLY AROUND****SUPERB REAL
TIME SIMULATION**

MYRDDIN FLIGHT SIMULATION

AMSTRAD CPC 464

**MANUAL****FULL SCREEN
DISPLAY****FLIGHT
CHART**

Here are some screens from a typical flight showing the view from the cockpit (top half of screen) produced as printouts of the actual simulator



A real time emulation with 3D graphics uses a massive 64000 x 64000 longitude & latitude flying area, making each flight completely different. Developed under pilot instruction to give realistic flight effect. The view through the cockpit gives moving 3D graphics.

Comprehensive instrument panel with moving needle meters & digital displays. 16 aircraft types with varying control sensitivities & speeds of between 100 - 500 knots.

3 runways available for refuelling, take off & landing. Ground and landmark orientation correct with all flying attitudes (rolls etc.)

The 3D graphics are still accurate when you fly upside down.

30 landmarks you can fly around.

Comes complete with manual & fully detailed chart of landmarks & airfields.

Joystick or keyboard operation

If your local dealer doesn't have it in stock yet, order from us direct. For despatch within 48 hrs. (usually 24 hrs.)

**MYRDDIN SOFTWARE, PO BOX 81, SWINDON, WILTS.
Telephone (0753) 40661**

Please send me Flight Simulator(s) to return of post for the Amstrad CPC 464

Name

Address

Postcode

Cheque enclosed for £11.95 (inc. P.P.)
OR Debit my Access A/C No

--	--	--	--	--	--	--	--	--	--

OR Telephone through your Access Order

Signed

SCW



GRAPHICS

Jan Revls looks at new products and new ideas in the world of graphics

In this article I present a ready-made choice between computers when your mind or that well-remembered glow position "Well, well you're coming to bed in this case take it me for once this week!" look. You need up in bed with a good book — including, of course, I have been doing just that for several nights over the past month, thumbing my way through some of the new releases.

The first book I studied was *Soft Computing, Art and Design* by Bruce Ruffin-Smith. The book is not a manual on programming computer graph-

ics, but rather an exploration of the role of computers in art and design. Mr. Ruffin-Smith attempts to present some concepts which could be explored by the computer artist.

One section discusses the many and varied real-life applications in which computers have been put to artistic ends. As an example of one of the more straightforward ideas, the book shows the work of Theo Goldberg, who fed a single set of data into both a graphics and a music package, and then connected the two inadvertently. Now there's an idea. How about designing a screen from a game through the sound

generator of your micro? Then again, would the results be worth all the trouble?

Although entitled *Advanced Sound and Graphics for the Dragon Computer* by Keith and Simon Brown, only 10 of the 230 pages were dedicated to sound synthesis. The highlight of the sound section is a graphic music editor which allows you to enter musical notation on the screen and then play back the finished work.

The graphics section is well written in an easy-to-follow style. Amongst the techniques covered are characters, graphics, charts, 3-D graphics, and — dare I mention it — machine code routines. At 12 1/2 it's a book no Dragon user should be without.

Graphics: Art on the





Commodore 64 by Boris Allen is an attempt to explain high-resolution graphics on the C64 without getting too technical. Unfortunately this is just one of the programs that prove troublesome to the less experienced programmer.

As an example, in his section on turtle graphics a seven-line program calls subroutines LOGO and LOGO2 (the three routines are not listed until four pages later).

Having explained the first routine you may think you're home and dry. Not so! The subroutines are line LOGO—the routine is to be found in

appendix B on page 103. Even at this point you still haven't completed your "I spy sub-routines" tour of the book. If you can make the layout of the program you'll find the remainder of the text very informative.

Turtle graphics

Obviously LOGO is considered a teaching language. It is ideal for use in teaching angles and co-ordinates. As a language it is well structured, allowing the use of procedures and Repeat/Again loops. The reason for its inclusion in this column is the fact that it can be used to great effect to produce complex, hyper-realistic pictures. One excellent version of LOGO for the BBC is called Picture Logic from Addshore. Widely available on both cassette and disc, it costs £16.90 in disc version.

Printed below is a short LOGO routine which should run with very little modification on most LOGO programs.

*Set up variables

```
TIMES 2
LENGTH 30
ANGLE 180
```

*Define procedure Polygon

```
DEFINE POLYON
  REPEAT TIMES
    FORWARD LENGTH
    LEFT ANGLE
  AGAIN
END
```

The procedure can also be called by typing POLYON(N) where N is always changing the values of ANGLE and TIMES you can create a variety of complex shapes.

Inspired Assistant

Here's a gadget which allows Amstrad CPC404 programmers to include, say, one you want to input. CALL ADDR will cause any text sent to the screen to be printed on the virtual PAPER colour is an ink background it is inverted colours. Calling the routine again restores this effect.

Here's an example

```
10 CLC
20 PRINT "Enter your name"
30 PRINT
40 CALL ADDR
50 INPUT NAME$
60 CALL ADDR
70 PRINT
80 PRINT "Hello" named
90 END
```

Touch Pad

If you've ever considered buying a graphics tablet for your BBC but have been deterred by size then you should take a look at the latest gadget from Comma.

The Touch Pad is a mere 18 x 15 x 5 cm. Compared to the shape of a wedge of cheese, it's powered by the foot and gives you all the features of a fully fledged graphics tablet — but without having to get yourself a bigger desk in order to use it.

IT'S EGGSILLERATING

ANF
AUDIO NATURE

COSMIC CHAOS

See if you can survive in another dimension where everything is in a state of chaos.
By A P Gardner

The great Zaks have thing you into another dimension which is in a state of cosmic chaos. There are 26 phases in the game. In each one you are faced with a variety of different horrors, including mutant monsters!

Your tiny, highly manoeuvrable craft flies over a maze equipped with a laser. But be careful how you use it since it is liable to overheat leaving you defenceless for a short time. Colliding with the remains of your last game is hazardous. You complete each phase after surviving for 30 seconds.

The controls are left arrow key — left, down arrow key — right, up arrow key — up, P — pause, B — restart after pause.

Variables

ATM horizontal position of ship
FT-PT variables holding graphics characters of objects to be plotted

AT% number of objects plotted during each loop

BT% variable horizontal position of object to be plotted

WT% width during each loop

W-BO remaining data on present phase

W-BO time of last

W-BO% score

BO highest score

BO number of high scores

Y% phase played

BT% remaining time

BT/WT% horizontal/vertical positions for explosions

C loop number pointer for COORDS used when creating variables for next phase

Y% volume for music

BO data for music routines

AT% constant for music routines

BT/WT% volume of objects/objects width being used

BO horizontal value

W-BO given vertical position of object

W-BO collision with object

Q% time 10 to 10 if mutated last

FT 10 BO% threat to discover an object different in horizontal co-ordinates between

ORIC 1 and ATMOS

How it works

writes HIFES memory read

BO an REMAIN, complete all

BO-BO the game in a series of

FT-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

BO-BO set up machine code

explosion

FT-BO you're killed. Deactivation level and test for end of game

BO-BO test of game over routine. set up new status data

BO-BO INPUT routine for high score's name

BO-BO game status and wait for key press

BO-BO set up status

BO-BO explosion phase complete, check if game is completed

BO-BO game completed routine

BO-BO set up variables for new phase

BO-BO data for all phases

BO-BO routine to play tones

Make no conversion

The conversion of your machine code in for other game files must be done manually, since impossible to convert.



Joe Berry shows you how to program your Texas computer with the aid of the CTRL key. It's easy once you know how



HOW TO PROGRAM YOUR TI

In the month-long series *Mastering the TI 99* published by Micro Press, Peter Brooks, describing events specially for the TI computer, writes: "If you type a line number followed by RDM and then hold the CTRL key down and press a few others followed by ENTER, and then attempt to fix the line, you will find a whole string of characters and TI BASIC words in the RDM line."

Successfully completing that experiment on line 100. If then tried typing line 100, with the CTRL key held down, the (variable) word letters A-D-O-U, not forgetting to space the letters as usual. This was a RDM line as before.

After pressing ENTER and LIST the following words appeared on the screen: RDM ELSE GO DEF UNBREAK RANDOMIZE. I next typed, in the same method, the letter A (line 120) ELSE appeared after entering and listing. On line 130, U, as expected, came up with RANDOMIZE. Then a second I could go through the alphabet, which proved to be the case, as follows:

A=ELSE, B=, C=L, D=IF, E=GO, F=GOTO, G=GO, H=RETURN, I=DEF, J=DIM, K=END, L=FOR, M=LET, N=READ, O=BREAK, P=TRACE, Q=UNTRACE, R=INPUT, S=DATA, T=END, U=RANDOMIZE, V

=NEXT, W=READ, X=STOP, Y=DELETE, Z=RDM
1=TO, 2=STEP, 3=, 4=normal, 5=, 6=L, 7=, 8=OPTION, 9=OPEN, 0=THEN

Taking the postscript characters into consideration, the characters in the code for the important command PRINT, -ON, +=CALL, while strangely, perhaps, the comma -62 -+5. Other BASIC words like RDM, NOT, OR, etc. can be found using the CTRL key in the same way.

All this, of course, must be known to some, but to me — and others I hope — it's an interesting discovery. Could these letters and characters be used in a kind of shorthand code for programming, I wondered? The RDM line seemed to make this an impossibility, but I found that, when running trial lines with the Extended BASIC module, one did not have to RDM for single character conversion.

If you have Extended BASIC try the following two-line trial program, remembering to hold down the CTRL key while pressing the comma, adding a space then typing in the phrase enclosed in quotes:

```
100, 'PRESS ENTER AND
    RUN THIS LINE'
110, 'NOW PRESS ENTER
    AND LIST'
```

You will find that in the

listing the characters are displayed by PRINT, but the lines for longer programs need not be listed until it is completed.

Now try this longer CTRL key program:

```
100P
110, 'THE CODE FOR
    'TRACE' WAS THE
    LETTER P WITH THE
    CTRL KEY DOWN'
120, 'THE CODE FOR
    'PRINT' IS ' '
140, 'THIS WILL LIST AND
    RUN'
150, 'THIS LINE WAS
    INPUT WITH THE
    LETTER 'R' PRESS
    ENTER/AS
160Q
170
180, 'NOTE THAT THE
    CODE FOR 'UNTRACE'
    (LINE 160) IS Q'
190, 'ALL LISTINGS ARE
    DISPLAYED CORRECT-
    LY, BUT REMEMBER
    THAT WHILE HOLDING
    THE CTRL KEY DOWN
    THE CODE CHARACTER
    IS NOT VISIBLE'
```

In any of this of practical use, you may ask? I suggest that as one becomes conversant with the codes it should speed up programming, but in any case describing in such as possible about the TI 99/4A, will lead to a better understanding of the machine.

[illegible]

PAP inc in price in the U.K. + Europe add 75p per tape. £1.00 for tape elsewhere. Send large S.A.D. for full list (price included) all machines ordered for. When ordering send cheque/P.O. to:

Hardware Software

10 MELODY COURT, WELLESLEY RD,
LONDON W4 3AW TEL: 01-994 2763

Abstract



Free admission unless noted. For all times, see website.

[Home](#)
[About Us](#)
[Contact Us](#)
[Privacy Policy](#)
[Terms of Service](#)

1. **Introduction**
 2. **Methodology**
 3. **Results**
 4. **Discussion**
 5. **Conclusion**
 6. **References**
 7. **Appendix**
 8. **Index**
 9. **Table of Contents**
 10. **Figure 1**
 11. **Figure 2**
 12. **Figure 3**
 13. **Figure 4**
 14. **Figure 5**
 15. **Figure 6**
 16. **Figure 7**
 17. **Figure 8**
 18. **Figure 9**
 19. **Figure 10**
 20. **Figure 11**
 21. **Figure 12**
 22. **Figure 13**
 23. **Figure 14**
 24. **Figure 15**
 25. **Figure 16**
 26. **Figure 17**
 27. **Figure 18**
 28. **Figure 19**
 29. **Figure 20**
 30. **Figure 21**
 31. **Figure 22**
 32. **Figure 23**
 33. **Figure 24**
 34. **Figure 25**
 35. **Figure 26**
 36. **Figure 27**
 37. **Figure 28**
 38. **Figure 29**
 39. **Figure 30**
 40. **Figure 31**
 41. **Figure 32**
 42. **Figure 33**
 43. **Figure 34**
 44. **Figure 35**
 45. **Figure 36**
 46. **Figure 37**
 47. **Figure 38**
 48. **Figure 39**
 49. **Figure 40**
 50. **Figure 41**
 51. **Figure 42**
 52. **Figure 43**
 53. **Figure 44**
 54. **Figure 45**
 55. **Figure 46**
 56. **Figure 47**
 57. **Figure 48**
 58. **Figure 49**
 59. **Figure 50**
 60. **Figure 51**
 61. **Figure 52**
 62. **Figure 53**
 63. **Figure 54**
 64. **Figure 55**
 65. **Figure 56**
 66. **Figure 57**
 67. **Figure 58**
 68. **Figure 59**
 69. **Figure 60**
 70. **Figure 61**
 71. **Figure 62**
 72. **Figure 63**
 73. **Figure 64**
 74. **Figure 65**
 75. **Figure 66**
 76. **Figure 67**
 77. **Figure 68**
 78. **Figure 69**
 79. **Figure 70**
 80. **Figure 71**
 81. **Figure 72**
 82. **Figure 73**
 83. **Figure 74**
 84. **Figure 75**
 85. **Figure 76**
 86. **Figure 77**
 87. **Figure 78**
 88. **Figure 79**
 89. **Figure 80**
 90. **Figure 81**
 91. **Figure 82**
 92. **Figure 83**
 93. **Figure 84**
 94. **Figure 85**
 95. **Figure 86**
 96. **Figure 87**
 97. **Figure 88**
 98. **Figure 89**
 99. **Figure 90**
 100. **Figure 91**
 101. **Figure 92**
 102. **Figure 93**
 103. **Figure 94**
 104. **Figure 95**
 105. **Figure 96**
 106. **Figure 97**
 107. **Figure 98**
 108. **Figure 99**
 109. **Figure 100**
 110. **Figure 101**
 111. **Figure 102**
 112. **Figure 103**
 113. **Figure 104**
 114. **Figure 105**
 115. **Figure 106**
 116. **Figure 107**
 117. **Figure 108**
 118. **Figure 109**
 119. **Figure 110**
 120. **Figure 111**
 121. **Figure 112**
 122. **Figure 113**
 123. **Figure 114**
 124. **Figure 115**
 125. **Figure 116**
 126. **Figure 117**
 127. **Figure 118**
 128. **Figure 119**
 129. **Figure 120**
 130. **Figure 121**
 131. **Figure 122**
 132. **Figure 123**
 133. **Figure 124**
 134. **Figure 125**
 135. **Figure 126**
 136. **Figure 127**
 137. **Figure 128**
 138. **Figure 129**
 139. **Figure 130**
 140. **Figure 131**
 141. **Figure 132**
 142. **Figure 133**
 143. **Figure 134**
 144. **Figure 135**
 145. **Figure 136**
 146. **Figure 137**
 147. **Figure 138**
 148. **Figure 139**
 149. **Figure 140**
 150. **Figure 141**
 151. **Figure 142**
 152. **Figure 143**
 153. **Figure 144**
 154. **Figure 145**
 155. **Figure 146**
 156. **Figure 147**
 157. **Figure 148**
 158. **Figure 149**
 159. **Figure 150**
 160. **Figure 151**
 161. **Figure 152**
 162. **Figure 153**
 163. **Figure 154**
 164. **Figure 155**
 165. **Figure 156**
 166. **Figure 157**
 167. **Figure 158**
 168. **Figure 159**
 169. **Figure 160**
 170. **Figure 161**
 171. **Figure 162**
 172. **Figure 163**
 173. **Figure 164**
 174. **Figure 165**
 175. **Figure 166**
 176. **Figure 167**
 177. **Figure 168**
 178. **Figure 169**
 179. **Figure 170**
 180. **Figure 171**
 181. **Figure 172**
 182. **Figure 173**
 183. **Figure 174**
 184. **Figure 175**
 185. **Figure 176**
 186. **Figure 177**
 187. **Figure 178**
 188. **Figure 179**
 189. **Figure 180**
 190. **Figure 181**
 191. **Figure 182**
 192. **Figure 183**
 193. **Figure 184**
 194. **Figure 185**
 195. **Figure 186**
 196. **Figure 187**
 197. **Figure 188**
 198. **Figure 189**
 199. **Figure 190**
 200. **Figure 191**
 201. **Figure 192**
 202. **Figure 193**
 203. **Figure 194**
 204. **Figure 195**
 205. **Figure 196**
 206. **Figure 197**
 207. **Figure 198**
 208. **Figure 199**
 209. **Figure 200**
 210. **Figure 201**
 211. **Figure 202**
 212. **Figure 203**
 213. **Figure 204**
 214. **Figure 205**
 215. **Figure 206**
 216. **Figure 207**
 217. **Figure 208**



COMMITTEE FOR THE PROSECUTION

The Postcard Computer Library
The Postcard

HCW needs you

Have you ever looked at the articles and programs on ECW and thought you could have written that?

'Why not try?' We welcome submissions from readers and are always interested in your ideas and suggestions.

Submissions tend to fall into one of three categories...

Programs are always supplied on cassette and are accompanied by full details of the program variables.

Please type these details double-spaced. Listings are helpful, but not essential. What is vital is that the programs should be completely error free, so please double check.

Articles on certain aspects of using home computers should be no longer than 1000 words. Try to keep to the style you use in HCW and include programming examples where they will help the reader understand the subject. We will convert your electronic illustrations into hard copy.

We also use short tips, articles and brief programming lessons. Any diagnoses you have made about your machine might be of interest to other readers.

All contributions are acknowledged and those accepted for publication are made free of charge.

The copyright in such work will pass to the Publisher. Please keep a copy of your work. We will include a telephone number and an SAE with everything clearly with your name and address on it.

All contributions should be sent to:

Submissions
Home Computing Weekly
No 1 Golden Square London W1R 3AA

MoveMead (Marketing) Ltd[illegible]

All prices inc. V.A.T., postage & packing is free on orders in excess of £15.00. All orders of less than this amount are charged £1.75 upwards, the extra. Orders dispatched within 3 days of receipt of your order and amount £10.00.

Abstract

MOVEHEAD (MARKETING) LTD
25 AYLESBURY STREET
BLETCHLEY, BUCKS MK2 3BH
TEL: (0908) 792122/3

Downloaded from <http://ajphaphysocpharm.sagepub.com>

All names are offered subject to availability. **TUPEL**

TEXAS INSTRUMENTS SOLA HOME COMPUTER SYSTEM



APPOINTED
DEALER

**PARCO
Electrics**

PARCO ELECTRICS, 117-118 ST. PETER'S
NEW STREET, NEWCASTLE, N.
TYNE, CO. TEL: 091 266 4400

PARCO ELECTRICS, 117-118 ST. PETER'S
NEW STREET, NEWCASTLE, N.
TYNE, CO. TEL: 091 266 4400

PROGRAMMERS

£10,000 P.A. + UNLIMITED BONUS

We're looking for the best games
machine code programmers in the
country to join our exciting
development team.
The rewards are exceptional for the right
people who show a high degree of
creativity plus a full knowledge of 286
machine code programming initially for
48k Spectrum.
Write with details to: Mr M Mahony,
Alligata Software Ltd., 1 Orange
Street, Sheffield S1 4DW Tel: 07421
755795.



THE TOMB OF KULSLAK

AMSTRAD



INTRIKKIE
SOFTWARE

Chardbrook Road, Borden, Kent TN30 6LJ
Telephone: 05806 4725

An interactive graphic and plot adventure with over 240 localities.
Available from your local stockist or direct from Intrikkie. First
class return post free for £12.50 POSTAGE GUARANTEED.

MICRO & VISION

ALL THE LATEST SOFTWARE FOR SPECTRUM,
BBC, COMMODORE, AMSTRAD ETC. CARRIED
IN STOCK. MANY GAMES REDUCED TO CLEAR
RING US FOR AVAILABILITY.
* SINGLAI SPECTRUM 48K — £9.95
* PRISM VTX 500 MODERN (SPECTRUM) — £29.95
* QUICKSHOT II — £8.95
* REMINGTON PRO JOYSTICK INTERFACE — £19.95
MANY OTHER ACCESSORIES & ADD-ONS
AVAILABLE.



At Northgate Parade,
Preston Road, Sarnel College,
London NW9 1BA
Tel: 01 725 1007

Open 10 to 5pm. Mail order only £1.00 P&P



AMSTRAD CPC464 ADVENTURES

"NEVERMORE ADVENTURES are like a breath of
fresh air!"
Tony Renda, PCW Dec '85.

THE TRIAL OF ARNOLD-BLACKWOOD	£ 3.95
ARNOLD-BLACKWOOD'S SECRET	£ 3.95
THE WISE AND FOOL OF ARNOLD-BLACKWOOD	£ 3.95
NEW TITLES	
ANGELIQUE: A GRIEF ENCOUNTER	£ 4.95
"So it resonates in light!"	PCW March '85
BLANK PAGE: a full scale adventure at a silly price —	£ 2.95
for the world be shivers!	(Brs. TWC) £3.95 only

Clap, PCW for immediate dispatch

NEVERMORE (HCVL, 19 Cadogan Rd, Brompton, S.W.19, London)
Northgate NW14 4DW.

Fed up of making cups of coffee while your Spectrum delves through your files? Fret no longer — Diana Smith shows you how to take short cuts

SORTING AT THE SPEED OF LIGHT

Many utility programs — personal files, spreadsheets, club membership lists etc. make use of a sort routine. Commonly, a BubbleSort routine is used. This has the advantage of being simple to program, but gives you time to make a cup of coffee and let it get cold before it has finished sorting large files.

This article demonstrates the QuickSort algorithm for sorting an array of alphanumeric characters with a Spectrum. This algorithm has the benefit of being very efficient for highly random arrays with many items to be sorted, taking a matter of seconds instead of minutes.

In addition, the routines described here allow you to sort the elements of an array by blocks of characters within each element. For instance, you may have an array which has code elements containing name, height, smoking, insurance etc. and you want to sort in order of height.

In BASIC, you could rearrange the array, remove its elements, to put height first and sort using the standard sort routines. Alternatively, you could use a modified sort as illustrated in Program 2 (BubbleSort) or Program 3 (QuickSort), where I and J define the block of columns by which the records are to sort. Bottom line, you can do much more with a Spectrum (Table 1) than the automatic improvement at speed possible.

How makes QuickSort so efficient? The QuickSort algorithm uses the result of each comparison to help decide which elements to check next. It takes the bottom element of the array and carries out a series of tests and exchanges so that the elements are left in a final position. All elements of lower value form a subarray below the element and all higher value elements form another subarray above it. These subarrays are treated in the same way until each subarray consists of one element. The array is then sorted.

Table 1. Time to sort single column arrays in seconds

Sort type	Items	Array type		
		Ordered	Random	Inverse
BubbleSort	50	3	3.1	3.1
	100	166	166	166
	200	662	777	662
QuickSort (BASIC)	50	1.5	1.9	1.9
	100	1.7	2.7	1.7
	200	19	37	42
QuickSort (machine code)	50	0.2	0.2	0.2
	100	0.6	0.4	0.3
	200	0.7	1.4	0.8

```

40 DIM Program 1
50 DIM BubbleSort
100 FOR I=1 TO row-1
110 LET J=I+1
120 FOR K=J TO row
130 LET I=J+K-1
140 IF AND(I TO 1) AND (J TO 1) THEN GO TO 160
150 LET SWAP=I AND J AND SWAP=J AND I
160 NEXT J
170 NEXT I
180 RETURN

```

The BubbleSort algorithm starts with the bottom element of the array, compares it with higher elements until an exchange is needed, swaps the element and continues up the element in a similar fashion until a gap to the top is then goes back to the bottom and repeats the whole process until the array is sorted. It is simple but slow.

A BASIC version of the QuickSort method is given in Program 2 and should be compared with the BubbleSort method of Program 1. QuickSort needs two arrays to hold markers for the subarrays. The size of these arrays varies with the size of the array to be sorted. Program 2 will cope with arrays of up to about 4,000 elements. The machine code version will handle arrays with up to 255 elements, each of which can be up to 255 characters in length.

Before entering the machine code version of QuickSort you should make space above RAMSTOP.

Key in the following program as a direct command:

```
PRINT (PEEK 23736+256)
PEEK 23731-400)
```

Press ENTER and press down the number shown. This number will be referred to as 'V'.

For the rest of the article will be the sort location for the machine code after RAMSTOP has been lowered by 600 bytes. Again, as a direct command, key in:

```
CLEAR (V-1)
```

and then press ENTER. RAMSTOP has now been lowered to make room for the code.

Program 3 gives a loading routine for the machine code held at the data segment. Type this in and save it as rapid as load code. When you have verified the tape you are ready to load the code above the lowered RAMSTOP.

RUN Program 1, entering the value of V when prompted for 'start address of code'. If you made an error when keying in the program, you will see an error message in the program margin. If an error is suggested, correct the data in the line indicated, save the corrected program and run it again until the 'Data correct' message is achieved.

An error, the code will run on a 48K Spectrum directly below the user defined program area. If you have a 16K Spectrum or your 'start address of code' is lower than 24761, you need to key NEW and key in Program 4. RUN that program and again answer with the value of V when prompted.

Study our book reviews before you invest your money. It's worth while!



The Art of Micro Computer Graphics for the BBC Micro and Electron

The graphics commands in BBC BASIC are some of the most powerful available on a home computer. They are also some of the most complex. The new book by Gordon Smith explains how to be greatly reduced with the help of a good manual.

The book could be just the thing for a user for one of the most sophisticated areas available in 48k pages it covers every aspect of graphics on the BBC. Just a few of the topics are the GOTO, statements, two- and three-dimensional drawing, hidden surface removal, moving colours, graphics input devices. The list is endless.

The book is liberally spiced with illustrations. Having glanced through the colour plates in the image I was getting to type in one of the exercises for polygons. The illustrations are sharp enough to register as they cover a surface having patterns, and creating fascinating patterns.

All programs included are beautifully annotated, making a very easy for the user to take procedures from the book and put them to work in programs.

The book, which can bring the chapters around, weighing in at £14.95, is definitely worth the price for money. J.R.

Price £14.95

Publisher Address Writie

Address 31, Bedford Square, London WC1B 10E

BBC

ELECTRON

Advanced machine language book for the Commodore 64

The majority of machine language and reference books cover an introduction to assembly, machine code and how to create a few effects on your C64. This book contains what the others lack.

The first chapter starts by giving all of the theory behind floating point arithmetic, how it is stored and how to understand its binary form. It then goes on to the methods of converting between the various number systems within the C64. The next chapters on the ROM chips are explained in detail, as are the methods of using them. The chapter finishes by giving an explained listing of a program to calculate polynomials.

In the second chapter everything you always wanted to know about interrupts is covered. This includes descriptions of the ROM routines used in their comments to give examples of how to handle your own interrupts which can be generated by some of the controlling chips within the computer. There are numerous program examples, these are all annotated and help understand a much needed subject by value books.

The third and final chapter covers methods of expanding the operating system to include your own features. Examples are given covering a wide range of extensions to the BASIC language. One of these allows you to create new BASIC keywords for your own commands. The book finishes by explaining the theory behind connecting a Commodore printer to your computer in what is given an example which prints the point.

This unique book is aimed at machine code programmers. It really is a bit of a book! R.L.

Publisher Fun Publishing

Address Unit 208, Horsham Rd, Horsham Ind Est, Pangbourne, Bucks

C64

BOOKS



BASIC Programming on the Amstrad

The manuals supplied by computer manufacturers vary tremendously from the painstaking and often with functions, through the deliberately isolated Commodore, to the nearly disabled advanced game of the BBC. Amstrad seems to have taken a middle course giving plenty of detail, a few program examples, and experience rather too late for the first time user.

Wynford Jones' 129 page volume makes no assumptions about what you know, starting right from the beginning with a clear description of in what a computer is and does, then goes on to explain the basic of printing to the screen so at least you can see something for your money! The style is very good and extensive which is quite rare. Most computer experts are not good when explaining to beginners.

The reader is taken through simple programming, then quickly on to simple graphics. Lots of the WHILE, REPEAT and FOR NEXT variants, IF-THEN devices, and arrays are all covered, as are games and graphics, sound and music, and concepts like There is also a very worthwhile chapter on program planning.

Nothing of substance is missed out, yet all the features which will improve the first time user are clearly explained with the aid of diagrams and computer organized listings for you to type in. It's such a book in understanding than the manual, and by the time you've done all the exercises you should be well and truly on command of the 48k. Not cheap, but definitely valuable! R.M.

Price £7.95

Publisher Peter Press

Address Castle House, 37 London Rd, Tunbridge Wells, Kent

AMSTRAD

BOOKS

You've spent it!

I think HCW has been spent completely.

If I want to read sales, I'll buy a comic or a pulpbook. It seems that HCW focuses on retail, DEC and Spectrum machines (in their order), Commodore and the others. There has fallen behind and there seems right out of it. It must be some or eight weeks since an Atari program was published.

I have an Atari 4000, and I can only read address and the occasional decent letter. I think it's a too much for this.

R. WILKINSON, Birmingham

Fenpai Patrick

I am a 40-year-old Belgian VIC-20 owner and I would like to correspond with an English VIC-20 owner. It will help my English, which isn't very good, and we will also be able to swap ideas etc.

I have had my VIC-20 for about three months now and it is still unexplored. Here in Belgium, it's sometimes difficult to get good software. I think that's a pity because the VIC-20 is a very good machine.

Oh, yes, you can get games here but serious software is very hard to find and when you do find some it's often on disc and I've only got a C20 diskette.

P.S. I like to know how the situation is in the UK compared with this.

Patrick Verhaeghe, Brijlwegpark 17 Bus Wijgaat, Antwerp Belgium

Secret of success?

I would like to ask Neil MacLennan a question. How did you manage to beat the computer 90 and 1-0 on Black? The most I can manage is something like 1-0 and 2-1 although I have won the FA cup once and got in the semi on numerous occasions.

R. WILKINSON, Birmingham

High price of repair

Our computer was taken into a local shop for repair two weeks ago. Today we found that Texas Instruments, to whom the computer was sent, is asking £40 before the computer is opened up to see what is wrong. Apparently if the modulator is at fault it will cost us a half under £40 to put right.

To me, this is outrageous. Presumably that Texas cannot or chooses not to produce the computer, hence reducing its price drastically, but the risk of expanding has remained high. By charging £40 for repair, however major or minor, we find that it is not worth having our computer repaired and we are left in a financial position to buy another.

The cause of our trouble was that, when it started BASIC, it typed ON ERROR, and then started to type the program line indicated as ON ERROR. On 1 I had typed in the line number concerned the computer beeped and off it had from then on I have been unable to save in the master system. Has anybody got any ideas on this?

I would obviously be very interested in other readers' experiences of Texas Instruments' support for their computer and I would also like to know if anyone else has had a similar problem when typing in a listing.

Anna Thomas, 10 Aston Way, Brixton, S.W.2 4PW

Morris aren't intelligible

I am writing to answer to the letter "The single disk" in HCW 30. I agree with the reader who said this.

In summer 1982 I bought an Atari 1050. This was better because it was already in what would happen with software support. At several points I found this better than Spectrum where companies do this.

There are many people who thought the same, and if you look at magazines for such machines I think you'll find that they were changed. This too can mean for some people who just want a machine to learn BASIC etc.

I'm still confused with my machine. I've got the program I want, a printer and I'm in the process of trying a disc drive. Why do people need to buy all these

games? I've got about 30 which I've bought and about 30 which I've found in magazines and some are great too to play.

So I did not buy the machine and to play the same games. These people who want, should buy another computer if they can afford a Micro and hardware and not things we can change every month, we can maintain software.

I hope other readers don't expect their parents to spend lots of money buying the latest distributions.

I think all computer games and their thinking of buying cost should not be mixed with the cost of the software sector which we now today will be old machines.

Jörg Bönisch, Mollat, Germany

Long-term reader

I buy your magazine every week and I have got every copy of it since the first one. I like the way you look in the magazine because it has got some good features, but I would just like to say that you should expand your games to about half a page.

I own a C64 and ever since I got the first magazine I have typed in every single program

and read probably every single review. Your reviews give me lots of ideas of what games I should buy. I have bought over 200 games by reading your magazine every week. Although I have played over 300 games and most of them are due to your magazine.

Michael Greenwood, Redditch

LETTERS PAGE

Help me with my
homework!

I am a Pakistani student in my first year and have been awarded the Pakistani Science and Computer Club medal. I am very pleased to have the opportunity to write to you and I would like to say that HCW is the best computer magazine around.

I am an IBM TR owner and I would like to thank you for your support of my IBM computer. I would also like to thank you for publishing yet another excellent game for the Spectrum by S. Roberts in 1987.

I am very worried about the computer programs that you publish because when I sit at front of my computer and start to type, it takes three to four hours to compile a program. Perhaps you could help me with this problem.

Admission: \$1000
 Registration: \$1000
 Conference: \$1000

It takes everyone a long time to type in a good computer program and although it may seem a lot of work it usually worth the effort. There is no way to speed up your typing apart from practice and taking care. If we produced stronger listings than the resulting program would not be ready to use.

[illegible]

May I compliment you on your new book magazine. I find it most interesting. I especially liked *The Love of Company* (HCW 800). I thought it extremely funny and very true to life — it sounds just like my computer.

I agree with L. Vandenberg in #104. Could you please give tips on advertising? Perhaps you could have a tip search?

Fieldwork

Ways and tips on adventures
are covered in our regular
Features column. By Peter
Savory, if you have any
adventure queries — or
collectors — write to him, c/o
of WCH, No 1 Golden Square,
London W1R 3AT.

Lowell M. Gertzel

While reading *NEWT 200*, I enjoyed a letter about a confusion with the Galileo chart I also see a possible source of mix-up I think to. Aylard was referring to the fact that, as the individual bits a game could be, for instance, scored, but in the overall chart it could be overruled by something lower down in the list.

I realize that the reason why some games are far more than one computer. Please could you have clearer disks without all the different makes of one game bundled together, even if it does mean some computers don't get a look in.

Abstract

The Gishap chart is an accurate reflection of the overall goals of a group. By isolating individual charts on the factors of the most popular companies and understanding how the chart is broken down into sections and the components.

Don't forget the
Apple.

[illegible]

Chief exhibit

I feel I must comment on DM's review of *Superscripts* in HCW 131. The review appears to be that of the Revised version which seems to be similar to a version of *Superscripts* 2 of earlier editions.

The picture above the review shows SuperRAM 3.5 which is a fairly strong Novellware program which replaces its 3-9999 sounds per move, has an on-screen clock, displays up to 10 half moves (left) and can solve problems of up to 12 in 1 move. That's not too shabby either.

Further Research

Underground Mark Gossaway's comments (H&W 57) and I agree with his point of view. As I live in Portugal the chance is quite small concerning the TI computer. You know, it's very hard and really expensive to get programs, hardware, or even assistance so the computer is not used so the shops are not used and mail order takes a long time, effort and money.

I don't have a single program that has been thought up recently. All of them are from magazines or books or thought in minutes. I don't know the English or American program standard so you can imagine how important HCTV is to me!

The situation of the
Spiritans over here is the
opposite — thousands of
illiterates, effeminate and

English), pleasantly comfortable, my kind of furniture (even floppy chairs), hundreds of magazines and books.

If in England the Torex can be considered a dead machine, in Portugal it is dead and buried as a base practically as support groups some magazines like H&W, a few books and the most valuable help from Penco Electronics and the TI Home Computer Users Club.

In my opinion, there should be a book for the TI enthusiasts and tips with special colour graphics and sound effects subroutines. These are often discovered by chance and some of us TI users know little tricks that help or that have huge scope. I have got a few little pointers.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

[illegible][illegible]

Continued on p. 28

and modified products and
new plants from January 1991.

My own view is that the other Superstate 3.0 plays a fast game in large part, many of 3.0 levels I have used and that when causing problems from newspapers and magazines versus 3.0 r. are likely to play the best one.

The problem made for
sides of up to four rooms to
the same or both scenarios,
using the same time to solve
each problem.

Figure 10.10.11. The control

...others appear to have
affairs both in the along
the majority of persons
we read, not only in your
space appear to be in-
crease and decrease.

Abstract

for as we are aware, the aim is for the country's citizens. All P.W. is not to work the program with the same interest. However, the university is working on spreading what we can do to create confidence among the people.



When did Jumping Jack say when an interviewer asked him if he enjoyed all that jumping? It has an up and down. **Ellen Mason, Hove**

You can do magic

In magic squares each straight line of numbers, including diagonals, adds up to the same total. If you put the numbers 1 to 16 in order into a square (Fig 1), the total is about as magic as forecasting yesterday's weather. But there is a simple way to arrange certain pairs of numbers and produce a magic square.

Can you work out how to do it? To start you off we've put in the digits for 1665 (Fig 2), so you shouldn't take all year to complete the task. **Fig 1**

16	15	14	13
9	10	11	12
8	7	6	5
1	2	3	4

Fig 2

5			8
			9
1			

Readers' hi-score table

Name	Games	Weekday	Scores
James Hagan	Killer Goofie	88C	45,500
Robert Armstrong	Defender	77	2,417,000
Paul Cribben	Palooka Pinball II	CM	95,000
Pete Stewart	Blitz Miss	CM	42,100
James Langridge	Tomb Raider Cup	73	344,270

NORTH EAST TI USERS CLUB

10 South Place, Newcastle upon Tyne NE1 1BB

Dear Bob

Thank you for publishing my previous letter about the North East TI Club in your magazine. During that time we had a substantial increase in membership and we have now completed our meeting times. The North East TI Users Club, which is generally divided in to the Town, Suburbs and Rural Groups now meets every fortnight from Saturday March 6th, just the Newcastle City Group will meet on the second week between 7.45 pm and 8.45 pm.

We can help in all aspects of computing and we also have software at discount prices together with a lot of magazines which are supplied between members. Members can also bring their own equipment to the club if they wish.

Your members are always welcome! Please ask for Bob or Carol.

Yours faithfully

P Carter

Helps Kettle

Solution to last week's puzzle

6	4	3	0	0	1	1	2
0	3	2	2	2	2	4	5
6	5	4	1	5	1	6	6
2	3	5	5	0	0	5	2
4	4	5	4	3	6	0	6
0	1	3	6	4	6	1	2
5	4	1	3	0	1	3	3

READERS PAGE

*Another winner in the range
of Sensational Software....*

AIR TRAFFIC CONTROL



Air Traffic Control is not just a game but a simulation of everyday problems encountered by those real-life air traffic controllers. All air travellers are unconsciously dependant on the skill of these people and this program enables you to test your skills in manoeuvring aircraft safely around the air motorways and despatching them into the hands of others in neighbouring air space.

MIKRO-GEN

44 The Broadway, Bracknell, Berks

0344 775757

Home Computer Weekly

*It is fascinating to watch and
interesting to play*

*Even on level one your interest
is held. Level nine is not
crowded but not even a real
computer could cope*

*As absorbing as a flight
simulator but different*

<i>instructions</i>	99%
<i>playability</i>	100%
<i>graphics</i>	95%
<i>value for money</i>	99%

Super Gran

FREE 16 X 24
FULL COLOUR
POSTER



TV
TYNE TEES
COLOUR

COMING SOON SUPER GRAN
THE ADVENTURE
SPECIALLY WRITTEN FOR KIDS

This great new game is based on the Tyne Tees series Super Gran and produced in association with Tyne Tees Television. Super Gran will be available for the CBM 64, Spectrum 48K,

C16 and Amstrad on April 2nd with versions for the BBC/B Electron, MSX, Atari and Einstein to follow.

TYNESOFT
COMPUTER SOFTWARE

Ring Tynesoft on (091) 414 4611 for your local stockist.